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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/660,688	09/13/2000	Bradley Cain	2204/A48	7084
34845	7590	10/18/2004	EXAMINER	
STEUBING AND MCGUINNESS & MANARAS LLP			PHAN, MAN U	
125 NAGOG PARK			ART UNIT	PAPER NUMBER
ACTON, MA 01720			2665	

DATE MAILED: 10/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/660,688

Applicant(s)

CAIN ET AL.

Examiner

Man Phan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-61 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 16, 17, 25-28, 35-37, 41, 42, 49-51 and 55-61 is/are rejected.
- 7) ☒ Claim(s) 5-15, 18-24, 29-34, 38-40, 43-48, 52-54 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/22/01</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. The application of Cain et al. for an "System, device, and method for receiver access control in a multicast communication system" filed 09/13/2000 has been examined. Responsive to the restriction requirement filed on 07/08/2004, affirmation of the election has been made by applicant, and a provisional election was made without traverse to prosecute the invention of group I, claims 1-61. Claims 62-80 are withdrawn from further consideration by the Examiner, 37 C.F.R. ' 1.142(b), as being drawn to a non-elected invention. Claims 1-61 are pending in the application.

### ***Claim Rejections - 35 USC ' 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any

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evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 1038 and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-4, 16-17, 25, 27-28, 35, 41-42, 49 and 55-61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shannon (US#6,233,618) in view of Putzolu et al. (US#6,611,864).

With respect to claims 27-28 and 35, Shannon (US#6,233,618) discloses a novel system and method for access control in a multicast communication network, according to the essential features of the claims. Shannon (US#6,233,618) discloses in Fig. 1 a block diagram illustrated the access control of networked data, in which the LAN 40 (subscriber devices) accesses the multicast network via network device 100 serves as "gateway" (access device), through which all data communication pass between the LAN 40 and WAN 45. As a "gateway", the network device 100 (access device) is configured also to monitor the data communications that pass between clients connected to the LAN 40 and servers connected to the WAN 45. The network device 100 detect requests for web pages, files or other data from any of clients 50 through 53 to servers 54 through 56. The network device 100 then either allows or denies the detected web page or information requests based on an examination of the content of the specific requests in comparison with access control data stored in databases 203, 204 and 208 (Col. 5, lines 51 plus and Col. 15, lines 38 plus). As an example, for client 52 to request a web page from server 55, client 52 uses the Hyper-Text Transfer Protocol, which operates in conjunction with TCP/IP, to

produce a packet of data (not shown in FIG. 1) that gets sent from the requesting client 52 onto the LAN 40 to be forwarded and received by server 55. In the invention, based on the contents of the packet sent from client 52, a determination may be made in network device 100 as to whether or not the request should be forwarded to WAN 45 and thus to server 55. As another example, if a client application desires to receive Multicast packets of Internet packet radio broadcasts, client 52 uses the Internet Group Messaging Protocol (IGMP) to produces a packet requesting to join a specific Multicast group. The IGMP request must pass through network device 100 in order to obtain Multicast Group access to a server supplying the Multicast data (*whether the subscriber device 52 can be admitted to the multicast group*) (See also Fig. 4; Col. 12, lines 37 plus and Col. 13, lines 19 plus).

However, Shannon does not expressly disclose wherein the policy service logic operably coupled to obtain from a policy server a policy decision. In the same field of endeavor, Putzolu et al. (US#6,611,864) discloses a policy-based network management (PBNM), in which a policy enforcement point (PEP) interacting with a policy decision point (PDP) for dynamic policy actions. Fig. 1 is a diagram of a policy enforcement point interacting with a policy decision point for dynamic policy actions according to an embodiment of the present invention. A policy enforcement point (PEP) 10 may be a dedicated device for providing network functionality that implements a policy in a PBNM system architecture. For example, the PEP may comprise a network router, a switch, or a firewall. A PEP may be a client in a client/server model, such as is used in the COPS protocol. A policy decision point (PDP) 12 correlates policy information to instruct one or more PEPs in handling network packets or otherwise providing network services. A PDP may be a server in the client/server model. In one embodiment, the PDP may be a general

purpose computer system. There may be one or more PDPs and one or more PEPs in this network architecture. Multiple PDPs may be linked in a hierarchical fashion. In this protocol, a PEP sends request, update, and delete messages to a PDP, and the PDP returns decision messages back to the PEP. Hence, the PEP communicates with the PDP to obtain policy decisions or directives for network management. The protocol uses the well-known transmission control protocol (TCP) as its transport protocol for reliable exchange of messages between the PDP and the PEPs. The protocol relies on the well-known Internet Protocol Security (IPSEC) protocol for authentication and security of the communications path between the PDP and the PEPs. The protocol is stateful in that it allows the PDP to push configuration information to a PEP, and then allows the PDP to remove such state from the PEP when it is no longer applicable. The PEP is responsible for initiating a persistent TCP connection to a PDP. The PEP uses this TCP connection to send requests to and receive decisions from the remote PDP. Communication between the PDP and the PEP is primarily in the form of stateful request/decision message exchanges, although the PDP may occasionally send unsolicited decision messages to the PEP to force changes in previously approved request states (Col. 3, lines 35 plus).

With respect to claims 55-61, Shannon (US#6,233,618) and Putzolu et al. (US#6,611,864) disclose the access control in a multicast communication system utilizing policy-based network management architecture as discussed above. Potzolu further teaches the use of COPS protocol message in PBNM architecture. Common Open Policy Service (COPS) protocol is conducted between a QoS policy server and network routers/switches. The COPS protocol is a "work in progress" or draft protocol of the Internet Engineering Task Force (IETF) dated Aug. 16, 1999, which may be found on the Internet at <http://www.ietf.org/internet->

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drafts/draft-ietf-rap-cops-07.txt. The COPS protocol describes a client/server model for supporting policy control over Quality of Service (QoS) signaling protocols and provisioned QoS resource management. In the COPS protocol, clients, called policy enforcement points (PEPs), relay information about network resource requests to policy decision points (PDPs), which interpret policies so as to determine whether a request for network service should be honored or not. More generally, policies consist of sets of conditions that must be met before certain actions can be taken (See Fig. 1; Col. 4, lines 12 plus).

Regarding claims 16-17, 25, they are method claims corresponding to the apparatus claims 27-28, 35 above. Therefore, claims 16-17, 25 are analyzed and rejected as previously discussed with respect to claims 16-17, 25.

Regarding claims 41-42, 49, these claims differ from claims Shannon in view of Putzolu in that the claims recited a computer program product for performing the same basis of steps and apparatus of the prior arts as discussed in the rejection of claims 16-16, 25 and 27-28, 35 above. It would have been obvious to a person of ordinary skill in the art to implement a computer program product in Shannon in view of Putzolu for performing the steps and apparatus as recited in the claims with the motivation being to provide the efficient enhancement to the access control in a multicast communication network, and easy to maintenance, upgrade.

One skilled in the art would have recognized the need for effectively and efficiently controlling access in a multicast communication network, and would have applied Putzolu's novel use of a policy-based network management (PBNM) architecture into Shannon's teaching of an access control technique in multicast group. Therefore, It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to apply Putzolu's

extensible policy-based network management architecture into Shannon's access control of networked data with the motivation being to provide a method and apparatus for controlling access in a multicast communication network.

4. Claims 36-37 and 26, 50-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shannon (US#6,233,618) in view of Putzolu et al. (US#6,611,864) as applied to the claims above, and further in view of Tang et al. (US# 2003/0165140).

Referring to claims 36-37, Shannon (US#6,233,618) and Putzolu et al. (US#6,611,864) disclose the access control in a multicast communication system utilizing policy-based network management architecture as described in the paragraph 3 above. However, Shannon and Putzolu et al. did not explicitly disclose wherein the multicast routing logic is operably coupled to send a PIM join request message. In the same field of endeavor, Tang et al. (US# 2003/0165140) disclose a system and method for efficiently distributing multicast message within computer networks utilizing standard unicast routing tables called Protocol Independent Multicast (PIM). Fig. 1 is a schematic block diagram illustrated a computer network, in which upon initialization, the VLAN assignment engines at each MND 122-126 may be configured to generate and transmit PIM Hello messages as defined by the Protocol Independent Multicast-Sparse Mode (PIM-SM) Protocol Specification, which is set forth at Request for Comments (RFC) 2362, and is hereby incorporated by reference in its entirety. In particular, the VLAN assignment engines preferably generate and transmit one or more PIM Hellos for each VLAN domain, which include the corresponding VLAN designation as a new option. For example, VLAN assignment engine 310 at MND 122 may generate a first hello message containing the red VLAN designation as an



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option. In the header of the PIM Hello, engine 310 loads the first IP address, which was assigned to MND 122 for the red VLAN domain. The PIM Hello is then transported via link 128 into VLAN region 102. The PIM Hello is received at MNDs 124 and 126 on their respective red VLAN interfaces. MNDs 124 and 126 compare the source IP address of the PIM Hello (corresponding to the first IP address at MND 122) with their own IP addresses associated with the red VLAN interface. The MND having the highest IP address is preferably assigned responsibility for the red VLAN domain. MNDs 122-126 similarly generate, transmit and examine PIM Hellos for the other VLAN domains of region 102 so as to assign responsibility for each VLAN domain to a single MND (page 6; para.0046-0047).

Regarding claim 26, it's a method claim corresponding to the apparatus claims 36-37 above. Therefore, claim 26 is analyzed and rejected as previously discussed with respect to claims 36-37.

Regarding claims 50-51, these claims differ from claims Shannon, and Putzolu in view of Tang in that the claims recited a computer program product for performing the same basis of steps and apparatus of the prior arts as discussed in the rejection of claims 16-16, 25 and 27-28, 35 above. It would have been obvious to a person of ordinary skill in the art to implement a computer program product in Shannon and Putzolu in view of Tang for performing the steps and apparatus as recited in the claims with the motivation being to provide the efficient enhancement to the access control in a multicast communication network, and easy to maintenance, upgrade.

One skilled in the art would have recognized the need for effectively and efficiently controlling access in a multicast communication network, and would have applied Tang's Protocol Independent Multicast (PIM) logic and Putzolu's novel use of a policy-based network

management (PBNM) architecture into Shannon's teaching of an access control technique in multicast group. Therefore, It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to apply Tang's system and method for distributing multicasts in virtual LANs, and Putzolu's extensible policy-based network management architecture into Shannon's access control of networked data with the motivation being to provide a method and apparatus for controlling access in a multicast communication network.

***Allowable Subject Matter***

5. Claims 5-15, 18-24, 29-40 and 43-54 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is an examiner's statement of reasons for the indication of allowable subject matter: The closest prior art of record fails to disclose or suggest wherein the policy service logic is operably coupled to send a policy service request message to the policy server indicating at least the multicast group and receive a policy service decision message from the policy server indicating whether the subscriber device can be admitted to the multicast group, as expressly recited in claims 5, 18, 29 and 43.

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The Caronni et al. (US#6,049,878) is cited to show the efficient, secure multicasting with global knowledge..

The Putzolu (US#6,578,076) is cited to show the policy-based network management system using dynamic policy generation.

The Peacock (US#2004/0044762) is cited to show the methods and apparatus for controlling IP traffic in a WAN or LAN.

The Francis et al. (US#5,331,637) is cited to show the multicast routing using core based trees

The Perlman (US#6,580,722) is cited to show the bypassing topological restrictions with tunnels.

The Aziz (US#6,330,671) is cited to show the method and system for secure distribution of cryptographic keys on multicast networks.

The Kobayashi (US#6,457,059) is cited to show the method and apparatus for transmitting multicast data in a switched LAN environment.

The Yagyu et al. (US#2001/0018714) is cited to show the multicast packet transferring apparatus, multicast packet transferring system and storage medium used in same.

The Araujo (US#6,097,720) is cited to show the enabling multicast distribution efficiencies in a dial-up access environment.

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The Hogg et al. (US#6,307,861) is cited to show the method and system for multicast using a satellite network.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. Phan whose telephone number is (571) 272-3149. The examiner can normally be reached on Mon - Fri from 6:00 to 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu, can be reached on (571) 272-3155. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2600.

9. *Any response to this action should be mailed to:*

Commissioner of Patents and Trademarks: Washington, D.C. 20231

or faxed to: (703) 305-9051, (for formal communications intended for entry)

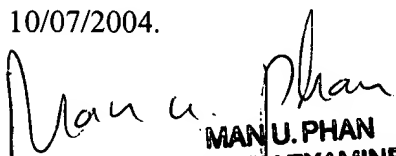
Or: (703) 305-3988 (for informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2021 Crystal Drive, Arlington.

VA., Sixth Floor (Receptionist).

Mphan

10/07/2004.

  
MAN U. PHAN  
PRIMARY EXAMINER